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THE HISTORY OF INDIAN ORNITHOLOGY



Bombay Natural History Society

Editorial

This issue of *Buceros* is a compilation of papers that pertain to the history of Indian ornithology. The purpose of this document is to bring the historical accounts of the ornithology of India from the early days to the present in one handy publication to serve as a source material for ornithologists and the growing legion of birdwatchers of India.

The first two papers, especially the first, also dwell on the ornithology of the neighbouring countries of India (Sri Lanka, Pakistan, Afghanistan, Nepal, Bhutan, Bangladesh and Myanmar). This is because the Europeans, who laid down the foundations of scientific ornithology as we know it now, treated this land mass as one region of the British Empire. With the leaving of the British and the accompanying political changes, the ornithological developments of this region are no more 'centred' in India as they largely were during the British era. In concurrence with this trend, the last paper, which is slated for a special publication of the Bombay Natural History Society commemorating the centenary of Salim Ali (regarded as the 'bird man' of India), is a historical account of the ornithology of independent India.

It will be noticed that there is some unavoidable overlap of information among the three papers. To avoid such repetitions of information, we have omitted other available literature that dwell on the history of the ornithology in India or the Indian subcontinent. Instead, these are listed as further reading towards the end of the issue.

THE HISTORY OF INDIAN MAMMALOGY AND ORNITHOLOGY PART II: BIRDS

Sir Norman Kinneer, C.B. (1952): *J. Bombay nat. Hist. Soc.* 51(1): 104-110

One of the earliest accounts on Indian birds was published in 1713 as an appendix to Ray's 'Synopsis Avium et Piscum'. The author was Edward Buckley a surgeon at Fort St. George, Madras, who sent descriptions and drawings of twenty-two birds found in and about Fort St. George to James Petiver (1663-1718) an apothecary of Aldersgate, London, and a well-known botanist and entomologist. From those drawings Linnaeus described the Paradise Flycatcher *Corvus paradisi* and Gmelin the Indian Pied Wagtail *Motacilla maderaspatensis*. In 1738 Eleanyar Albin brought out his illustrated work entitled 'A Natural History of Birds' and this was followed the next year by a supplement. Then in 1743-51 George Edwards published 'A Natural History of Uncommon Birds' and a few years later in 1758-64 'Gleanings on Natural History'. Many of the birds figured in these four works were given scientific names by Linnaeus, Gmelin, Latham and others and included a number of Indian species brought from the East by merchant ships.

Reference has already been made in the previous section to the work of the earlier French travelling naturalists, and it only remains to add a few further remarks. In 1774 Louis XV of France fitted out an exploring expedition to visit China and other countries on the way, and Pierre Sonnerat was appointed naturalist. The ship reached India in the end of 1774 or early in 1775 and called first at Mahe on the Malabar coast and secondly at Pondicherry on the coast of Coromandel. At each of these places a short stay was made and Sonnerat collected some specimens, which after the return of the expedition to France he described in his book 'Voyage aux Indes Orientales' (1782). He did not however give scientific names to these birds; that was done later by Scopoli, Gmelin and Latham.

On March 28th, 1834 Adolphe Delessert set out on his travels in the East and by August 10th had reached Pondicherry. From there he went further eastward returning some time later and went to Calcutta, where he remained from July to November 1837. In his account of his travels, 'Souvenirs d'un Voyage dans L'Indes' (1843), he makes no mention of going to Bhutan although he brought home from there three birds; the Blackcrumped Magpie, *Pica bottanensis*, Stripethroated Siva, *Muscicapa variegata* (= *Siva strigula*) and the Whitethroated Spinetailed Swift, *Hirundapus nudipes*. From Calcutta, Delessert went to the Nilgiris, where he met Jerdon in 1839, and showed him a new babbler which Jerdon described in his Catalogue as *Crateropus delesserti*. Delessert also obtained several other birds, which he thought were new, but all of them had already been described by Jerdon.

In 1752 JoIm Gideon Loten was appointed Governor of Ceylon, an office he held for five years, and afterwards was Governor of Java till he retired in 1759 and settled in London. He was interested in natural history, and while in Ceylon,

he employed a Burgher named de Bevere to paint birds. These drawings he brought home and lent some to Thomas Pennant, who had them reproduced in 'Indian Zoology' (1769) and Forster's 'Indische Zoologie' (1781). He also allowed Peter Brown to figure fifteen in his 'New Illustrations of Zoologie' and gave Sydney Parkinson permission to make copies of his whole collection for Sloane and Banks. These drawings and descriptions by the different authors may be considered the beginnings of Ceylon ornithology.

Dr. John Latham commenced in 1781 his 'General Synopsis of Birds' in which he brought together the descriptions of all the known birds, but it was not till 1790 in his 'India Ornithologicus' that he gave scientific names to the birds. When this remarkable man was eighty-one years of age, in 1821, he began publishing 'A General History of Birds' a work in eleven volumes which was not completed till 1828, and though it has been much criticised there is no doubt the work was of great value to ornithologists of the period. In the latter part of the eighteenth century taxidermy was still in its infancy and instead of making a collection of stuffed birds, it was the custom in India to employ a native artist to make paintings of birds. Many collections of such paintings were made and some became famous because Latham saw them and described the birds in his works. Among these collections was that made by Lady Impey, the wife of the Chief Justice of Bengal in the time of Warren Hastings, and there was another, made by a later Chief Justice, Sir John Anstruther. The collection of Lord Mountmorris included both African and Indian birds, but by far the largest was the one made by Major-General Hardwick chiefly in the 'Upper Provinces of Hindustan'. Latham, however, did not have the opportunity of examining any of Dr. Buchanan's drawings which were referred to under the section on Mammals (Vol.50, p. 766). Hardwick, in addition to employing a native artist to paint birds also had a shikari to shoot and preserve specimens. Once he made a trip, accompanied by a Mr. Hunter, to Sirinagar above Hardwar and it was on this occasion that he obtained the Whitecrested Laughing Thrush he described as *Corvus leucolophus*. Shortly after this excursion which took place in 1796, he persuaded Lieut. Counsel to collect birds for him at Almora. Among the specimens thus obtained were the Cheer Pheasant *Phasianus wallichii*, the Koklas Pheasant *P. puerasia* and the Jays *Garrulus gularis* and *vigorsii* (= *G. lanceolatus*) and *G. ornatus* (= *G. bispecularis*). With the help of Dr. Wallich, who was in Nepal making botanical collection, Hardwick received from the Hon. Edward Gardner the first examples of the blood pheasant, the female of which he originally considered was a separate species and described it under the name *Phasianus gardneri*.

When Hardwick went home on leave in 1802 he took with him all his drawings and note books, and, on his return to India in 1806, he left his mammal and bird drawings in England but took with him his note books and drawings of insects, intending to work at them on the voyage. Unfortunately the ship he was on foundered when six days out from Plymouth and he lost everything. Five years later he was home again and this time handed over his bird drawings to Dr. Latham to use and, after he had finally retired and was living in London, he arranged with Dr. J. E. Gray to publish a folio work of plates entitled 'Illustrations of Indian Zoology' (1830-34). No letterpress was ever published and the plates were principally of birds, though there were also a number of mammals, fish and reptiles.

Before the first number of this book was issued John Gould the taxidermist in charge of the museum of the Zoological Society, acquired a small collection of bird skins from the Himalayas; the exact locality from which they came is a matter of dispute. Most of the birds were new and Mrs. Gould made drawings of them, which were exhibited when the birds were described by N. A. Vigors at meetings of the Zoological Society. Ultimately the drawings were published in a single folio volume with letterpress by John Gould. All the birds figured in this work were not from the collection Gould had received; one came from the Museum at York, another - the Maroon Ortole - was lent by the museum in Liverpool and came from Nepal, and two or three, including the Ibisbill, were lent by Dr. Struthers of Glasgow.

About the same time as Gould got his birds, Captain James Franklin of the 1st Bengal Cavalry - an authority on geology - undertook a journey through the Central Provinces to study the rocks of the Vindhyan hills. Before starting he arranged to collect birds for the Asiatic Society and by the time he had reached Benares had secured forty specimens; and when he finished his journey at Saugor he had obtained one hundred and sixty more as well as making paintings of all of them.

After Franklin had described the collection, the Asiatic Society decided to present the specimens to the Zoological Society and accordingly the skins, paintings and Franklin's notes were sent home to that Society and exhibited at a meeting. The Asiatic Society had stipulated that the paintings and notes should be returned to them, but whether they are still in existence is not known.

Captain W. H. Sykes, of the Bombay Army, had, for some years, been engaged in compiling a 'Statistical Account of the Dukhun' and at the same time made a collection of birds which he took home and presented to the Company's Museum in 1831. In the *Proceedings of the Zoological Society* for 1832 he published 'A Catalogue of Birds of the Raptorial and Incessorial orders (systematically arranged) observed in the Dukhun.'

The following year Lieut. S. R. Tickell, an officer of the 1st Native Infantry in civil employ on the S.W. Frontier of Bengal, sent to the Asiatic Society for publication 'A List of Birds collected in the jungles of Barabhum and Dhalbhum'. After serving for some time in Bihar, Tickell was transferred to Tenasserim where he made some important discoveries. While still in Bengal he paid a visit to Darjeeling and did some collecting there but never published any paper. As already mentioned under the Mammals (Vol.50, p.766), his MSS account of Indian Mammals and Birds is in the library of the Zoological Society and contains good notes on the habits of birds in many localities in Bihar and Orissa, Darjeeling and Tenasserim.

Three years later a young Scotch doctor, who had been appointed to the Madras Establishment, arrived in India and in course of time was to become the authority on Indian Birds. This was T. C. Jerdon and after serving his short training in Madras he was sent to Ganjam and from there went to join his regiment at Tellicherry. A year or two later the regiment moved to Jalna in the Deccan and on reaching that station he sent the collection of birds he had made

to Sir William Jardine in Scotland asking him to check his identification, but owing to the long sea voyage and the ravages of moths the skins had to be destroyed when they reached Scotland. Nevertheless Jerdon decided to publish the account of his collections and rely on his own identifications. This paper was his well-known 'Catalogue of the Birds of the Indian Peninsula' which appeared in the *Madras Journal of Literature and Science* between 1839-41 followed by two supplements in 1845-46 which brought the total recorded in his catalogue up to 420 species which, compared with the 236 in Sykes's list and Franklin's 156 gives an indication of how the knowledge of Indian birds was increasing. After completing his catalogue, Jerdon began on another work 'Illustrations of Indian Ornithology' with descriptive letterpress, which was completed in 1846.

As already mentioned, Gould was the first to make known birds from the Himalayas and from time to time he made additions to his original list, but it is to Brian Hodgson that we really owe our knowledge of the birds of that great chain of mountains. Hodgson first went to Nepal in 1820 and soon became interested in mammals and birds, but it was not till 1829 that he seriously took up ornithology and in that year sent to the *Gleanings in Science* the description of a new hornbill *Buceros nepalensis*. Thereafter he produced a steady stream of papers till he left Nepal in 1844. When he returned to live at Darjeeling in 1845 he still continued to take an interest in ornithology, but only published five papers before leaving India for good in 1858. Owing to restrictions imposed on Europeans in Nepal, Hodgson had to confine his observations to the great valley and to rely on his native collectors to obtain specimens outside the limits of the valley. These men he sent right up to the snow line and on one or two occasions into Tibet, but that was principally to get mammals. Where actually the collectors went we do not know, since Hodgson mentions few localities beyond the valley of Nepal.

Hodgson started ornithology with few books and no one to help him, and indeed, he was very isolated at Katmandu. All the specimens he obtained himself or were brought in by his men were carefully measured, weighed and minute descriptions taken of each or at least the first four or five. Many of the notes he recorded on the habits of different birds are not always very reliable since they were often not his own but what his men told him. Hodgson's collection contained a wonderful series of some species, but unfortunately his collectors were never taught to make good skins and the labelling was at fault, usually a strip of native paper with a number on it and some notes in the vernacular. Besides employing several skinners he had at least one artist, who made careful sketches of all the soft parts of the specimens as well as at least one complete drawing of each species. Hodgson was the first to write on bird migration in India and his paper 'On the migration of the Natatores and Grallatores as observed at Katmandu' (*Asiatic Researches*, 1833) shows that he was a close observer. He was also the first to draw attention to the altitudinal distribution of species in his paper on the 'Physical Geography of the Himalaya' (*Journal Asiatic Society of Bengal*, XVIII, 1849), a paper which is often overlooked, though six years later F. Moore gave a summary of it in the *Proceedings of the Zoological Society*.

During the first Afghan war Captain T. Hutton made a small collection of birds in Southern Afghanistan and recorded it, with Blyth's assistance, in 'Rough Notes on the Zoology of Candahar and Neighbouring Districts' (*Journal Asiatic*

Society of Bengal, 1845). Both Hutton and Blyth were, however, unaware that Dr. Griffith had also collected birds during the same campaign and that his travels had been over a much wider area, including Cabul and Kafiristan, and even as far west as Bamian. This collection was sent home to the Company's Museum in Leadenhall Street, but nothing was done with it until the catalogue of that Museum was published in 1854-58 where some of the specimens were listed. Whistler, however, recorded all Griffith's birds in his 'Materials for the Ornithology of Afghanistan' *Journ., B.N.H.S.*, Vols. 44-45 (1944-45). Horsfield and Moore in the catalogue above referred to several mistakes over Griffith's specimens, recording skins he obtained in Assam as coming from Afghanistan. These Assam birds of Griffith were obtained after he had left Drs. Wallich and McClelland when they had finished investigating the conditions under which the tea plant grew in the Khasia Hills. The collection McClelland made in these hills was worked out by himself. He then sent his paper to Horsfield with the request that he should read it through and arrange for its publication in the *Proceedings of the Zoological Society*, where it appeared in 1840.

Two years previously, Capt. Pemberton had been sent by the Government on a mission to Bhutan. He was accompanied by Dr. Griffith as medical officer and botanist, another officer and a taxidermist and a collection of nearly 500 bird skins belonging to 126 species were obtained. Most of the specimens were sent to India House, only a few going to the Asiatic Society. No paper was written on this collection but the most interesting birds were, however, recorded in Ludlow's 'Birds of Bhutan' (*Ibis*, 1937).

In 1849, Gould commenced another large folio work the 'Birds of Asia' but he died before it was completed and Dr. Bowdler Sharpe was responsible for the seventh volume which came out in 1883. The plates were very good and there is much of interest in the letterpress about the localities of some of the earlier specimens he described and as to who collected them. He mentions a Captain W. E. Boyes of the 6th Cavalry, who made a considerable collection in the Himalayas, United Provinces and Rajputana and kept careful notes. Boyes died in 1854 and his collection was sold by auction, the greater part of it was bought by Dr. Wilson and given to the Philadelphia Museum, but a good many skins were secured by Sir William Jardine and H. E. Strickland. Gould gives further particulars about the birds obtained by Lord Gifford in Kashmir, where he went in 1846 with his younger brother then Lord Arthur Hay, who afterwards became the well-known ornithologist the Marquis of Tweeddale. It has never been possible to discover whether other specimens than those mentioned by Gould were obtained by these two brothers, and certainly none of their note books are now in existence.

Edward Blyth came out to Calcutta in 1841 to take charge of the Asiatic Society's Museum which he built up in a few years to have the best collection of birds outside Europe or North America. He established systematic ornithology in India on a sound basis but had little opportunity for field work, though he was a good observer as can be seen by the 'List of Birds observed in the vicinity of Calcutta' (*Ann. Mag. Nat. Hist.*, 1843), which he wrote a few years after his arrival.

In a later number of the same journal some of Blyth's identifications were queried by H.E. Strickland who afterwards published in the *Annals* a translation

of a little-known paper 'The Birds of Calcutta' by C. J. Sundeval, a Swede, who had spent a few months in Calcutta in 1825. Soon Blyth was in correspondence with men interested in birds all over the Company's territories and at the monthly meetings of the Society was wont to discourse on the birds they sent him. Sometimes he read a paper reviewing a group or a family but as there was frequently a delay in publishing these papers he adopted the unfortunate custom of publishing and distributing them privately, which has led to confusion in nomenclature. In the course of time, Blyth wrote a number of these revisions with the intention of publishing a book and in 1855 an advertisement appeared in the press to the effect that the first number of a serial work on ornithology by Blyth was to be published shortly by Messrs. Thacker, Spink & Co., but nothing further was heard of the proposed work. Blyth gave great assistance to Jerdon, who frequently refers to him in the supplement to his catalogue as well as in his book. He also was in correspondence with Kelaart when preparing his 'Prodromus Faunae Zeylanicae' which originally that ornithologist had arranged to write with E. L. Layard. For some unknown reason he dropped Layard and the birds in the book were given as a mere list. This was unfortunate as Layard was a very fine ornithologist, who spent a number of years in Ceylon, and wrote 'Notes on the Ornithology of Ceylon' (*Ann. Mag. Nat. Hist.*, 1853-54). For some time, Blyth had been engaged in preparing a catalogue of birds in the Society's collection, but though it was completed in 1849 the volume did not appear till 1852 owing to the fact that Blyth kept adding one appendix after another. 'The Catalogue of Birds in the Collection of the East India Company', two volumes of which appeared in 1854 and 1858 was never completed as the museum was closed, shortly after the British Government took over the East India Company.

Jerdon and Blyth were great friends but the same cannot be said of Hodgson and Blyth. From letters and other sources it is evident that Hodgson resented Blyth's editing of the communications he sent for publication in the Society's journal and furthermore Blyth was always so very over-worked that he sometimes delayed or mislaid Hodgson's papers, which naturally caused annoyance.

Soon after the mutiny Jerdon went on sick leave to Darjeeling and then later was posted to Burma. On his way through Calcutta he saw the Viceroy, Lord Canning, and put before him a scheme for a series of manuals on the vertebrates of India. When he had only been a short time in Burma he was recalled and placed on special duty to write the manuals. The first to be published was the 'Mammals of India' and in 1862 the first volume of the birds came out followed by the second volume in two parts in the following year.

Jerdon's 'Birds of India' was for years the standard work on that country. The area it dealt with was limited to India proper, that is from the Himalayas to Cape Comorin and from the Indus to the Teesta and Brahmaputra in the east. Though Assam, Burma and Ceylon were not included, Jerdon frequently refers to species found in these countries. As Hume and Blyth have pointed out Jerdon's descriptions were sometimes inadequate, but his notes on habits have made the work a classic amongst Indian bird books. After he had finished the second volume, Jerdon started on the volumes on reptiles and fish, but he also found time to visit Kashmir more than once, as well as all the hill-stations in the Himalayas, the Khasia Hills and other parts of Assam and made many additions to the 1,008 different species of birds he had given in his book. Had he lived to

complete the volumes on reptiles and fish, doubtless he would have written an additional volume on the birds or brought out a second edition.

Dr. Leith Adams, whose service in India is given in the previous section, wrote two important papers, the one in the *Proc. Zool. Soc.*, 1858 deals with the habits of the birds he met with in India chiefly in the plains, while the other which came out in the same journal is an account of the birds he observed in Kashmir and Ladak. In this last paper he gives fuller particulars of the several new birds he discovered and Gould described including the Orange Bullfinch *Pyrrhula aurantiaca*, the Tibet Snowfinch *Montifrigilla adamsi* and the two forms of the Kashmir Dipper *Cinclus cashmeriensis* and *sordidus*.

Sir Norman Boyd Kinnear (1882-1957) joined the Bombay Natural History (BNHS) as its first stipendiary Curator in 1907. During his term of office, Kinnear gave invaluable service to the Society by placing the whole of its museum on a sound scientific basis. Later, he undertook the task of assembling the enormous collections obtained from the systematic Survey of the Mammals of India, Burma and Ceylon, in order to provide material for a comprehensive study of the status, variation and distribution of the mammals of the erstwhile Indian Empire.

In 1920, he entered the service of the British Museum (Natural History) as an assistant, later rose to the rank of Deputy Keeper of Birds in the Bird Department, and on the day of his retirement, was appointed as Director of the Museum. While at the British Museum, he, along with Hugh Whistler, took the responsibility of studying the bird collections of the Vernay Scientific Survey of the Eastern Ghats undertaken by the BNHS, the results of which were published jointly by them in the *Society's Journal*. He was also associated with other scientific societies, among them the British Ornithologists' Union, of which he was president from 1943 to 1948.

Note: The above manuscript is a true copy of the paper as published in the concerned journal, except for addition of punctuation marks, the absence of which were too numerous and glaring to be ignored. The names of places, scientific names, and abbreviations for journals remain as such, even if no more in use or erroneous (e.g. Sirinagar for Srinagar, *Montifrigilla* for *Montifringilla*).

BIRD STUDY IN INDIA: ITS HISTORY AND ITS IMPORTANCE

[Extract: Salim Ali's (1979) *Azad Memorial Lecture for 1978*,
Indian Council for Cultural Relations, New Delhi]

- - - I am not aware of any ancient treatises on Indian birds, as such, which describe their attributes and external characters in sufficient detail to permit their identification with certainty, except perhaps in the case of the commoner species that figure prominently in mythology, legend or folklore – such as crow, parakeet, koel, peacock, and some others. In any case a direct assessment of their worth as 'scientific' text would be beyond me since I am no scholar of Sanskrit or Pali. However, the English translation of the Sanskrit text of a book *Mrigh-Pakshi-Sastra* or 'Science of Birds and Animals' by Hamsadeva, said to be a Jain author of the 13th century A. D. - - - is not impressive. Its bizarre descriptions, often comically vague and amusing, perhaps rendered more so by the translator's special brand of English, are not very revealing - - -

The other sources of information regarding Indian birds of the pre-Moghul period are the several lexicons of Sanskrit words, though these are not very helpful in identifying the species either. Some names are based on calls, i.e. they are onomatopoeic like *Kaka* for the crow [which says 'ka...ka']; others are based on coloration, habits, gait, method of feeding, and so on. Some names are identifiable easily enough, while others are obscure. Perhaps the only person who has attempted to identify birds from such Sanskrit names was the late Dr. Raghuvira in his publication *Indian Scientific Nomenclature of the birds of India, Burma and Ceylon*, 1949. With varying – often dubious – success he identifies some 250 Sanskrit words with known species of Indian birds. Some of his conclusions, however, are distinctly far-fetched! Classical Sanskrit literature occasionally makes specific mention of Bird Migration, as for example the migration of geese (*hamsa*) – wrongly rendered as 'swans' by many commentators – to lake *Manasa* (*Manasarovar*). The poet Kalidasa, a close observer of bird behaviour – described the migratory habits of two species of geese, *Raja-hamsa* (Barheaded) and *Kadamba* (Greylag) as accompanying the rain clouds on their way from the *Vindhya*s to the *Himalayas*.

The Indian Koel and its habit of brood-parasitism was well-known to the Vedic seers, and described unambiguously in Sanskrit literature. Interestingly enough, this appears also to be the earliest record of avian brood-parasitism, since it was described many centuries before Aristotle (384-322 B.C.) or his immediate colleagues or predecessors began to write about the European Cuckoo.

The Moghul Emperors, at least from Babur to Shah Jahan, were renowned aesthetes and lovers of Nature in all its forms. Among them the two most outstanding naturalists were Babur and his great-grandson Jahangir. Some of the accounts they have left behind of the habits and behaviour of the birds that came under their personal observation are so apt that they could scarcely be bettered for incisiveness and scientific accuracy today. What is more creditable about these

royal naturalists is that they do not rely on mere hearsay but make a clear distinction in their writings between their personal observations and what has been reported to them by others - - -

The outstanding features of Jahangir's character were his love of Nature and his powers of observation. It has been rightly said of him that had he been head of a Natural History museum he would have been a better and happier man. His *Memoirs* are replete with observations on birds and other animals written with an accuracy and insight that would do credit to a modern student of bird behaviour and ecology. He has, for instance, some extremely useful and interesting notes on the breeding habits of the Sarus Crane from the time of their pairing onward and till the eggs were hatched, that are in complete accord with present day knowledge. Jahangir established and patronized a school of animal painting at his court headed by the famous Ustad Mansur, honoured by the Emperor with the title of Nadir-ul-Asl. Whenever an unfamiliar or exotic bird or beast was brought to him, Jahangir first studied it carefully for its characteristics before describing it in his *Memoirs*. Immediately thereafter he caused it to be painted by Ustad Mansur or one of his school to serve as supporting illustration. Since the Emperor's reputation as a lover of birds and animals had spread far and wide throughout the world, foreign emissaries accredited to the Moghul court vied with one another to bring him as *nazar* or *peshkash* the strangest and rarest birds and beasts from their respective countries for the Imperial menagerie. In this way was built up the unique collection of exquisite animal portraits which, on the disintegration of the Moghul Empire gradually got scattered and, largely through loot and skulduggery, found its way to unexpected and far-flung corners of the earth. Among the bird portraits attributed to Ustad Mansur, but which is certainly the handiwork of one of his school and period, is a painting of a Siberian or Great White Crane - - - The interesting point about this painting - fortunately still in the collection of the Indian Museum, Calcutta - is that it was executed between the years 1616 and 1620 A.D. and thus nearly 160 years before the bird was actually 'discovered' and described for western science (in 1773) by the Russian zoologist Pallas from the swamps bordering the Ob and Irtysh rivers in USSR! Another bird painting, a miniature, of Jahangir's period and though unsigned and undated clearly of the Mansur school has the unique distinction of being one of the only two drawings ever made from life of the Mauritius Dodo (*Raphus cucullatus* L.) which became extinct in 1681. The portrait is considered by experts to be the most scientifically accurate one in existence - - -

Foreign adventurers and travellers to India in the closing years of the Moghul Empire, towards the end of the 18th century and the beginning of the 19th, had carried back with them as novelties from time to time to various European museums small collections of the skins and eggs of Indian birds. Sporadic collections had also been assembled by servants of the East India Company for its own museum in Calcutta in various newly purloined territories of the insiduously expanding British Indian Empire. But scientific ornithology, more or less as understood today may, for practical purposes, be said to commence with the publication of the two volumes of Jerdon's classic *Birds of India* between 1862 and 1864. In this work the author bestowed an English name on all the birds of India largely based on British analogies. While many of them are reasonably appropriate, others have gone through numerous attempted improvements by

successive authors. It is to be hoped that English nomenclature has at last attained near-stability with the latest publication, the 10-volume *Handbook of the Birds of India and Pakistan* by Salim Ali and S. Dillon Ripley, 1968-73. The standardization of vernacular bird names for all-India use still remains an urgent need in order to satisfy the demand for popular bird books in the regional languages.

One of the earliest of the 'modern' accounts of Indian birds was actually published in 1713 by Edward Buckley, an East India Company surgeon in Madras, with descriptions and drawings of 22 birds found in and about Fort St. George. Several other bird collectors and writers followed during the rest of the century, many of whom have left their mark on Indian ornithology either by describing newly discovered birds, or having such novelties named after them, and in other ways. The first serious attempt at recording the avifauna of a definitive region in India in a scientific journal (*Proc. Zool. Soc., London*) was a paper in 1881 by a Capt. James Franklin, a geologist who had undertaken expeditions in the Central and United Provinces to study the rocks in the Vindhyan Hills, and incidentally to collect birds for the Asiatic Society. He collected some 200 birds of 156 species, of which 32 he described as new.

Among the early writers on Indian birds before the publication of Jerdon's *Birds of India* another specially notable one was Col. W.H. Sykes who came out to India in 1803 aged 13, and, believe it or not, received a commission in the Bombay Army. He saw a great deal of service in the Mahratta wars, and collected birds in the Bombay Deccan. His well-known paper 'A Catalogue of the Birds of the Deccan' was published in the *Proceedings of the Zoological Society, London* in 1832. He described a number of new species many of which he named after Hindu deities such as *Milvus govinda* for the Pariah Kite, *Hippolais rama* for a Tree Warbler, *Petrocinchla pandoo* for the Blue Rock Thrush, *Hypsipetes ganessa* (after Ganesh) for the Southerly Black Bulbul, and others. There were several other similarly active field workers, mostly civil or military officials, in the employ of the East India Company scattered widely over different parts of the country during the first six decades of the 19th century. But the period was dominated by the virtual founders of Indian ornithology, namely Brian Houghton Hodgson (first assistant British Resident and later Resident, at the court of Nepal between 1820 and 1844), Edward Blyth, the Curator of the Asiatic Society of Bengal's museum, Calcutta, from 1841-62 whose writings did more for the extension of natural history studies in India than any other - and Thomas Caverhill Jerdon, a surgeon in the Madras Army of the East India Company's establishment. John Gould, the taxidermist of the Zoological Society, London, was the first to make known birds from the Himalayas from a small collection of skins he had acquired between 1825 and 1830. Most of the birds were new and Mrs. Gould made drawings of them which were described by N.A. Vigors and published in *A Century of Birds from the Himalayan Mountains* in 1832. In 1849 Gould commenced a sumptuous elephant folio work of coloured lithographs, *Birds of Asia*, but died before it was completed, and Dr. Bowdler Sharpe was responsible for the 7th (final) volume which came out in 1883.

Jerdon's *Birds of India* epitomizes the knowledge up to that period based largely upon the publications of these and several other illustrious field

naturalists, and on the vast collections of skins made by them and their numerous correspondents and proteges scattered over the Company's territories. In the latter part of the 18th century, and even till well into the 19th, taxidermy was still in its infancy, and instead of making a collection of stuffed skins it was the custom in India to employ local artists to make paintings of birds. The tradition of life-like animal portraiture set by the Jahangir school was still very much alive. Many collections of bird paintings were thus made, e.g., those of General Hardwicke and Francis Buchanan-Hamilton, and some of them became famous because of the many new species that were described on their basis in lieu of actual skins. In 1844 Jerdon himself had published a selection of 50 lithographs with descriptive letterpress entitled *Illustrations of Indian Ornithology*. The originals of these were drawn by Indian artists, and half the number were also lithographed and painted in Madras. It was noted at the time that 'Their excellence and the faithfulness of the drawings has been universally allowed.'

The publication of *Birds of India* at once gave a marked impetus to bird study in the country, still almost entirely restricted to Europeans. It found new devotees among British officials, planters and professional men, some of whom in turn were soon to become prominent names in Indian ornithology. The period thence, and right up to the publication of the first edition of the bird volumes of the India Office-sponsored *Fauna of British India* series by Oates and Blanford, was completely dominated by that extraordinary personality, Allan Octavian Hume, who had meanwhile appeared on the scene. Apart from his other great intellectual and humanitarian qualifications Hume's special claim to be remembered in India lies also in the fact that he was one of the original founders of the Indian National Congress, and this while still in the civil service of the Government of British India. He has, with good justification, been called 'The Father' – and by those who were irked by his occasional dogmatism 'The Pope' – of Indian ornithology. He collected methodically and intensively, himself as well as with the help of his numerous correspondents and proteges widely dispersed over the country, chiefly between the years 1870 and 1885, and thus brought together a collection that has doubtfully ever been equalled in magnitude in any branch of zoology or botany. It totalled some 60,000 skins of birds, in addition to a very large number of nests and over 16,000 eggs, all of which he later presented to the British Museum. Hume founded and edited a journal of Indian ornithology with the somewhat eccentric title of *Stray Feathers* between 1872 and 1888. Its 11 volumes containing papers by some of the more upcoming ornithologists of the time, written under his energetic guidance, and much of it by himself, are a veritable gold mine for the ornithologist and an eloquent memorial to the zeal, erudition and versatility of their remarkable editor. In *Stray Feathers* Hume has described a large number of novelties discovered during the period, and this work is indispensable for any serious study of Indian birds.

When *Stray Feathers* ceased publication, in 1889, most of its former contributors as well as other workers who had come into prominence meanwhile, diverted their writings to *The Ibis*, the journal of the British Ornithologists' Union and to the *Journal of the Bombay Natural History Society*, the last, which made its debut in 1886 – Indian ornithology received its second definitive boost after Jerdon by the publication between 1889 and 1898 of the 4 volumes on birds by Eugene W. Oates and W. T. Blanford in the *Fauna of British India* series. Like its

predecessor this work brought together, and up to date, all the advances in knowledge resulting from the extensive researches done in field and museum during the intervening 27 years. This renewed fillip was clearly responsible for producing the rash of outstanding field ornithologists that distinguished the next 33 years up to the publication of Vol. I of the second edition of the *Fauna of British India* series on Birds – the *New Fauna* for short – by E. C. Stuart Baker, himself an illustrious product of that period.

The six main volumes of the *New Fauna* were completed in 1930. They in turn showed up many lacunae in our knowledge, especially concerning the areas in the subcontinent imperfectly explored or not at all, such as the Eastern Ghats and the territories of many of the princely States. This generated a series of regional ornithological field surveys organised or sponsored by the Bombay Natural History Society, which resulted in significant advances in our knowledge of the ecology, systematics and distribution of Indian birds.

A feature of the years, particularly between the two World Wars and since the end of the Second, is the increased emphasis on bird watching and ecological study in India as distinct from specimen collecting. This has been facilitated, among other things, by the availability of well illustrated books on Indian birds for identification in the field and by the great improvement in technology and optics – in binoculars, cameras, telephoto lenses, also fast films, colour photography and sound recording – all essential tools for serious field work.

All the new accretions to knowledge have found their place in the latest work – the 10-volume *Handbook of the Birds of India and Pakistan* referred to earlier – along with a great deal of other data collected by several keen Indian ornithologists who had surfaced in the intervening 40 years since the *New Fauna* appeared – and especially, since our Independence. The two most outstanding British ornithologists specializing in Indian birds in the period up to 1943 were Dr. Claud B. Ticehurst and Hugh Whistler, the former a Captain in the R.A.M.C. during the First World War, who had spent a couple of years in what is now Pakistan, and the latter an Imperial Police Officer in Punjab for a number of years. Since the untimely death of these two veterans – Ticehurst in 1941 and Whistler in 1943 – the British era of Indian ornithology has virtually ended. Most of the work thereafter has been done by Indians a few of whom have come into international prominence. A distinguished exception is my colleague and co-author of the *Handbook*, the American Dr. S Dillon Ripley, now Secretary of the Smithsonian Institution, Washington. Dr. Ripley has been closely associated with Indian ornithology and Indian ornithologists for over 30 years, both in the field and the museum, and in collaboration with Indian colleagues has undertaken several expeditions and made, and continues to make, important contributions to knowledge.

FIELD ORNITHOLOGY IN INDEPENDENT INDIA

Ranjit Manakadan, S. Alagarrajan & J.C. Daniel (in press)
Petronia, Bombay Natural History Society, Mumbai

The foundations of scientific ornithology in India were laid by the Europeans and most of the ornithologists of the Indian subcontinent in the 19th and early 20th centuries were Europeans. The debt that Indian ornithology owes to Brian Houghton Hodgson, Edward Blyth, T.C. Jerdon, John Gould, James A. Murray, Eugene W. Oates, W.T. Blandford, Allan Octavian Hume, E. Stuart Baker, Claud B. Ticehurst and Hugh Whistler is enormous. Independence saw the rise of Indian ornithologists, some of whom had also been active during the close of the British era. In this article, we give an account of the major, largely field based, ornithological studies in India after Independence, and the personalities and institutions that shaped them.

Foremost among the Indians who made an impact on Indian ornithology was Salim Ali (1896-1987) of the Bombay Natural History Society (BNHS). He carried out a series of surveys before Independence, of the Hyderabad state 1931-32, Travancore and Cochin 1933, Central India (Bhopal, Gwalior, Indore and Dhar) 1938, Mysore 1939-40, Kutch 1943-44, and Gujarat 1944-48, which were published in a series of articles in the *Journal* of the BNHS (Hyderabad: Vol. 36, 37 in five parts, Travancore and Cochin: Vol. 37-39 in eight parts, Central India: Vol. 41 in two parts, Mysore: Vol. 43, 44 in five parts, Kutch and Gujarat: Vol. 52 in two parts). The surveys culminated in the books *The Birds of Kutch* (1945), *Indian Hill Birds* (1949) and *The Birds of Travancore and Cochin* in 1953 (revised and renamed *Birds of Kerala* in 1968). Ali also carried out surveys of Orissa (1948-49), Berar (1951), Sikkim (1952-53), Bhutan (1966-69), Goa (1972) and Arunachal Pradesh (1979-82) after independence. The results of these latter surveys were not published, though the Sikkim survey gave rise to *The Birds of Sikkim* (1962), and the Bhutan survey *The Birds of the Eastern Himalayas*, written in collaboration with S. Dillon Ripley of the Smithsonian Institution, USA. Besides these, Salim Ali made a seminal contribution to Indian ornithology by the publication of the *Handbook of the Birds of India and Pakistan* (1968-75) with S. Dillon Ripley. The *Handbook* is the definitive reference on Indian ornithology. He popularised bird watching in India by his *The Book of Indian Birds*, first published in 1941 and now in its 12th edition, written in delightful and impeccable English.

Another Indian ornithologist, who made an impressive contribution is Humayun Abdulali. Abdulali took to birds in his student days, accompanying his cousin Salim Ali on his bird surveys. Joining the BNHS Executive Committee as Honorary Secretary in 1950, Abdulali was instrumental in critically examining and cataloguing the bird skins in the Society's collection. Abdulali led two major expeditions to the Andaman and Nicobar Islands in 1964 and 1966, which enabled a thorough revision of the avifauna of the islands and resulted in the publication of the survey reports in the Society's *Journal* 61(3): 483-571, 64(2): 139-190, 68(2): 385-411, which included several new races. A prolific contributor

to the *Journal of the Bombay Natural History Society (JBNHS)*, Abdulali has to his credit more than 300 scientific papers, articles and book reviews on birds and other wildlife.

Zafar Futehally, who served as Honorary Secretary of the BNHS from 1963 to 1974, was responsible for popularising field ornithology at the amateur level. His *Newsletter for Birdwatchers* started in 1961, received enthusiastic support from an active group of birdwatchers. The *Newsletter* serves as an important medium for contributions mainly by birdwatchers, as the *JBNHS* has gradually become too 'scientific' for naturalists. Fatehally, an active conservationist, was the first recipient of the Salim Ali Memorial Award in 1997 and was instrumental in getting the Government of Maharashtra to declare Karnala near Mumbai (Bombay) as a bird sanctuary.

R.S. Dharmakumarsinhji, a scion of the former princely state of Bhavnagar in Saurashtra, Gujarat, contributed much to the ornithology of Saurashtra. He compiled his observations over the years to produce the book *The Birds of Saurashtra* (1954), besides contributing many papers and notes in scientific journals. He was a reputed aviculturist, an adept bird photographer (see photographs in *Sixty Indian Birds*, co-authored with Lavkumar Khacher), and held high positions in wildlife-related organisations, besides being a musician, painter and a hockey coach! His innovative study of the Lesser Florican *Sypheotides indica*, using decoys to get male floricans within camera range, is commendable. Dharmakumarsinhji, along with other members of the princely families of Gujarat, such as Shivrakumar and Lavkumar Khacher (Jasdan State), M.K. Shrivhadrasinhji (Bhavnagar) and M.K. Himmatsinhji (Rutch) contributed a great deal to the 'post Independence' ornithology of Gujarat.

J.C. George, co-author of the book *Avian Myology* (along with Andrew Berger), was an avian myologist at the M.S. University, Vadodara (Baroda). He founded the journal *Pavo* in 1963, which met the need for an exclusive medium for papers on both laboratory and field oriented ornithology. George (along with Ramesh M. Naik) was instrumental in setting up the Division of Avian Biology at the University. Later, he migrated to Canada to teach at the University of Guelph. One of his distinguished doctoral students was Ramesh M. Naik (1931-1991). After a teaching stint at his *alma mater*, Naik moved to Saurashtra University (Rajkot) in 1978, later to head the Department of Biosciences. Naik, unlike his guide, switched from physiological studies of birds to the study of the living bird, after coming into contact with Salim Ali and Shivrakumar Khachar. He and his doctoral students published many papers on various aspects of the biology of the House Swift *Apus affinis*, Jungle Babbler *Turdoides striatus*, House Sparrow *Passer domesticus*, mynas and Indian Reef Heron *Egretta gularis*.

A number of scientists of the Zoological Survey of India (ZSI) distinguished themselves as ornithologists. Biswamoy Biswas, a very competent taxonomist, carried out bird collection trips in different parts of India, Nepal and Bhutan, which resulted in a series of papers from 1947 up to the 1980s. B.S. Lamba contributed in the 1960-70s to the study of breeding biology and nests of Indian birds. Ajit Kumar Mukerjee's papers were largely on the food and feeding habits of waterbirds and the birds of northeastern India and the Andaman and Nicobar

Islands. Anil Mahabai's work was on the Common Myna. The ZSI also published *Birds of Andaman and Nicobar Islands* by B.K. Tikader (well known for his work on spiders and scorpions) in 1984. The ZSI continues to contribute, off and on, to the taxonomy and biology of Indian avifauna.

The year 1959 saw a significant step for Indian ornithology when the first ever organised scheme for bird ringing and migration study (funded by the World Health Organisation) in the Subcontinent was taken up by the BNHS. The man behind the endeavour was Salim Ali, inspired by his visit to the Ornithological Observatory at Heligoland in 1929, and the catalyst, the outbreak of an apparently new form of encephalitis in the Kysanur forest area of Karnataka state, affecting villagers and also monkeys. The aim of the study was to investigate the role of migratory birds in the spread of this tick-borne disease, as it was similar to a disease endemic in the Omsk region of the former USSR. This was the genesis of the Society's bird migration studies, which carried on till 1972, and again between 1980 to 1992 with funding from the U.S. Fish and Wildlife Service. At present (1999), the Society has an ongoing project on training bird banders, again funded by the U.S. Fish & Wildlife Service.

The seventies saw the emergence of a fresh batch of ornithologists attached to the BNHS, most of them students of Salim Ali – Vijaykumar C. Ambedkar (Baya Weaver), Robert Grubb (vultures) Priyadarshini Davidar (ornithophily), P. Kannan (ornithophily), V.S. Vijayan (bulbuls), S.A. Hussain (bird banding), K.S.R. Krishna Raju (bird banding), Y.A.H. Yahya (barbets), D.N. Mathew (babblers) and K.N. Panicker (hole nesting birds). Among them, was Mohammed Ali Reza Khan (Black and Orange Flycatcher) from Bangladesh, followed later on (1980s) by Mohammed Anwarul Islam (laughingthrushes). The field work conducted by these researchers was the precursor of most of the present day field studies on birds in the Indian subcontinent. Many of these scientists went on to head ornithology departments, institutions or projects in their countries.

In 1982, the Indian Council of Agricultural Research (ICAR) launched the *All India Co-ordinated Project on Agricultural Ornithology* at five centres: Andhra Pradesh Agricultural University (Hyderabad), Gujarat Agricultural University (Anand), Indian Agricultural Research Institute (New Delhi), Punjab Agricultural University (Ludhiana) and Rajasthan Agricultural University (Kota). Two more centres were subsequently added, University of Horticulture & Forestry (Solun, Himachal Pradesh) and Kerala Agricultural University (Trichur). The project, the first of its kind in India to study the impact of birds on agriculture (as pests, insect pest destroyers and pollinators), is commendable in that it aims at reducing crop losses and not reduction in the population of birds. Interestingly, Salim Ali had pointed out, as far back as 1936, the need to encourage research in economic ornithology in India (*Current Science* 4: 472-478) and had suggested that the ICAR (then known as the Imperial Council of Agricultural Research) take up such a project. The outputs of this discipline can be as diverse as community structure and population ecology of birds in agricultural lands, their food preferences (obtained either from gut content analyses or observations of live birds in captivity or in the wild), management and control, and also the evaluation of the beneficial role of birds in agricultural ecosystems (see M.S. Dhindsa and H.K. Saini (1994) "Agricultural Ornithology: An Indian Perspective" *Journal of Biosciences* 19: 391-

402 and M.S. Dhindsa, P.S. Rao & B.M. Parasharya (1998) (Birds in Agricultural Ecosystem (sic), Society for Applied Ornithology, Hyderabad).

Major field studies in ornithology till the 1980s were largely the preserve of the BNHS due to its long tradition of bird studies, the ornithological literature available in its library, its collection of bird skins, and the presence of Salim Ali. The 1980s were significant for Indian ornithology and the BNHS, in that large multi-personnel projects on ecological studies on avifauna were initiated. One of these was the Bird Migration Project (1980-1992) headed by S.A. Hussain. In this project, field stations were established in important bird areas all over India, and a lot of data was collected on bird populations, structure, movements and their habitat. At Bharatpur, a ten year intensive holistic study (with birds as the focal point) was carried out in Keoladeo National Park with V.S. Vijayan (now Director of the Salim Ali Institute for Ornithology and Natural History, Coimbatore) as the Principal Investigator. Another important project (1981-1988) was on endangered grassland birds (Great Indian Bustard, Lesser Florican and Bengal Florican), headed by Asad R. Rahmani, presently the Director of the BNHS. One of the conclusions of this project was the need for conservation of grassland avifauna (and other wildlife), which was largely overlooked compared to forest or wetland birds at that time. These studies resulted in another major project (1991-1996) on the flora and fauna of the grassland plains of India. Asad R. Rahmani has proposed the creation of "Project Bustard", with this group of birds as the focal species for the conservation of the grasslands, as is "Project Tiger" for Indian forests. In 1980, the Society started a project on the bird hazards to aircraft at 30 aerodromes, under the direction of Robert B. Grubb. The studies, which are continuing today, were based on field observations, microscopic and macroscopic laboratory methods. The major bird species that are hazardous to aircraft were identified, reasons for their proliferation at aerodromes were determined, and recommendations made to eliminate or reduce the incidence of bird strikes. Another major study that began in the mid-eighties (and is still carrying on under different projects) was the project on raptors, with contributions largely by Vibhu Prakash and Rishad Naoroji. Rishad Naoroji, an expert on raptors and an industrialist by profession, has a book on raptors *Birds of Prey of the Indian Subcontinent* under preparation.

A very significant outcome of these projects of the BNHS was that they gave rise to a new batch of scientists who worked on various bird species and disciplines of ornithology, many of whom are now based at various institutions in India - R. Sugathan (bird migration, Ceylon Frogmouth), S. Alagarrajan (doves, forest bird communities, bird migration), P. Balasubramanian (frugivory, bird migration), V. Natarajan (Greater Coucal, bird migration, grassland birds), S. Balachandran (bird migration), S. Bhupathy (migratory ducks), U. Sridharan (resident ducks), T. Sundaramoorthy (forest bird communities), Lalitha Vijayan (drongos, Siberian Crane), N.K. Ramachandran (jacanas, Sarus Crane), Ranjit Manakadan (Great Indian Bustard, waterbirds, flamingos, grassland birds), Bharat Bhushan (Great Indian Bustard, Jerdon's Courser, birds of the Eastern Ghats), Ravi Sankaran (Lesser Florican, Bengal Florican), Usha Ganguli-Lachungpa (Lesser Florican), Goutam Narayan (Bengal Florican, Blacknecked Crane, bird hazards to aircraft), Lima Rosalind (Bengal Florican, Blacknecked Crane, bird migration), Syed Asad Akhtar (bird migration, Blacknecked Crane,

harriers), Jugal Kishore Tiwari (bird migration, grassland birds, waterbirds), Saraswathy Unnithan (bird hazards to aircraft, bird taxonomy), Prakash Rao (bird hazards to aircraft, bird migration, forest bird communities), K.K. Mohapatra (bird migration), R.B. Singh (vultures, bird hazards to aircraft) and S.M. Satheesan (Black Kite, bird hazards to aircraft).

The 1980s and the early 1990s saw significantly more institutions and college/university departments involve themselves in ornithology (or wildlife studies): the Wildlife Institute of India, Dehra Dun; Salim Ali School of Ecology, Pondicherry; Department of Wildlife Biology, AVC College, Mayiladuthurai; Department of Zoology, Osmania University, Hyderabad; Centre for Ecological Sciences, Indian Institute of Science, Bangalore; Department of Zoology, University of Calicut, Kozhikode; Centre for Wildlife and Ornithology, Aligarh Muslim University, Aligarh; Animal Ecology and Wildlife Biology Lab, Department of Zoology, University of Gauhati, Guwahati and the Salim Ali Centre for Ornithology and Natural History, Coimbatore. These centres carry out research and offer courses in wildlife or bird related subjects. The Centre for Ecological Sciences deserves credit for adopting a theoretical approach to analysis of ornithological information, e.g., Gadgil (*Ibis* 114: 531-532) and Daniels (*Ibis* 138: 64-69, *J. Bombay nat. Hist. Soc.* 88: 320-328), Daniels, Hegde, Joshi and Gadgil (*Conserv. Biol.* 5: 464-475), which were non-existent till then in Indian ornithology. In recent years, birdwatching has seen many followers, and the BNHS now offers a correspondence course in field ornithology to provide birdwatchers, naturalists and educators with a fundamental understanding of ornithology and conservation. The Rishi Valley Education Centre in Chittoor district, Andhra Pradesh also offers a correspondence course in ornithology, with members of the birdwatchers group of Bangalore as consultants. Incidentally, the Rishi Valley Education Centre had brought out a commendable book on the birds of Rishi Valley in 1993 (*Birds of Rishi Valley and renewal of their Habitats* - S. Rangaswami & S. Sridhar).

A growing number of birdwatchers have been making significant contributions to Indian ornithology after Independence. Many are attached to regional bird societies associated with the study and conservation of birds of their concerned areas. The more active are the Andhra Pradesh Birdwatchers' Society, Hyderabad (publishers of journal *Mayura* and newsletter *Pitta*), members of the Ornithological Society of India based in Bangalore (publishers of *Newsletter for Birdwatchers*), Madras Naturalists Society (publishers of the newsletter *Blackbuck*), Salim Ali Wild Wings Trust, Mumbai and the Ecological Society, Pune (publishers of *Journal of the Ecological Society*). The location of these societies in the various states of India has helped bring out updated checklists or other publications from these regions. One of the first such outputs was the book *A Guide to the Birds of the Delhi Area* (1975) by Usha Ganguli, a member of the Delhi Birdwatching Society. In Kerala, K.K. Neelankantan (1923-1992), a professor of English literature, was responsible for popularising birdwatching in the state by his seminal works in the Malayalam language. Neelankantan did not live to see his *A Book of Kerala Birds*, which was brought out in 1993 by his colleagues C. Sashikumar and R. Venugopal. This publication serves as a companion volume to Salim Ali's *Birds of Kerala*. Another commendable work is *A Checklist of Birds of Andhra Pradesh* by Siraj A. Taher and Aasheesh Pittie of the Andhra Pradesh

Birdwatchers' Society in 1989. The Salim Ali Wild Wings Trust, a new entrant in the field, has been undertaking projects in Kerala (funded by the Kerala Forest and Wildlife Department) and is helping to produce the revised edition of Salim Ali's *Birds of Kerala*, besides preparing checklists of the various sanctuaries in the state. In 1998, the BNHS was selected as the BirdLife International's partner in India, and it has been given the role of networking with such regionally based societies to involve them in the project on identification and study of 'Important Bird Areas' of India for future conservation. The network partnership will lead to the development of these institutions, in terms of monetary benefits, infrastructure and trained personnel for advancement of avian research and conservation programmes. BirdLife International, in collaboration with SACON, is also in the process of bringing out a *Red Data Book* of Indian birds.

Though the British era of Indian ornithology ended with Independence, some Europeans continued to make their mark in Indian ornithology. The association of S. Dillon Ripley (Smithsonian Institution, USA) and Salim Ali resulted in the ten volume *Handbook of the Birds of India and Pakistan*. Ripley's other major contribution to Indian Ornithology was his *Synopsis of the Birds of India and Pakistan* (1961, 1982). Among the other Europeans known for their work in India are: John Hurrell Crook (Cambridge University) for his papers on Weaver Birds (*JBNHS* 57: 1-44, 60: 1-48, *Proc. Zool. Soc. London* 142: 217-255); Anthony J. Gaston (Canadian Wildlife Service) for his work on forest birds (especially babblers) since the mid 1970s, Peter Garson (New Castle University & World Pheasant Association) for pioneering studies in the 1980s on pheasants, and Trevor Price for his studies on the birds of the Eastern Ghats in Andhra Pradesh and warblers in Kashmir in the 1980s and 1990s. A popular field guide for Indian birds in the 1980s was Martin W. Woodcock's *Collins' Handguide to the Birds of the Indian Subcontinent*. Its simplicity and colourful scenic illustrations of birds (by the author himself) made it a birdwatcher's delight, and it is a pity that further editions of the guide were not brought out. Ben King (American Museum of Natural History) undertook birding trips in Kashmir and northern India, and is known for his *A Field Guide to the Bird of South-East Asia* (co-authored with Martin Woodcock and E.C. Dickinson) published in 1975. A foreigner of Asian origin who contributed to Indian ornithology was Loke Wan Tho. Destiny brought him to India and the BNHS, as a refugee from Singapore in the wake of the Japanese occupation. His friendship with Salim Ali and their field trips resulted in a number of notes in the BNHS's journal, besides his articles on bird photography (*JBNHS* Vol 50: 785-786, 618-622), in which he excelled. Loke's first wife, Christina, too was an excellent bird photographer, as evident from the 100 photographs in Malcolm Macdonald's book *Birds of an Indian Garden*, published in 1960.

A recent field guide of 'foreign origin' is the *Birds of the Indian Subcontinent* (1998) by Richard Grimmett, Tim Inskipp and Carol Inskipp. This is the first book on the ornithology of the Indian subcontinent to have adopted the DNA technique - versus the old classification system based primarily on morphological features - of classifying birds. It has also adopted new English names for birds, which is presently a contentious issue in ornithological circles. Name changes of Indian birds and the new classification order have been discussed in a publication of the BNHS in 1988 (*Buceros* Vol.3, No. 2) and earlier in 1993 by Aasheesh Pittie and

Andrew Robertson (*Nomenclature of Birds of the Indian Subcontinent: A Review of some changes taking place*), published by the Ornithological Society of India, Bangalore). It is likely that Indian ornithologists will start adopting this new classification, and in future, some of the English names for Indian birds will not be the ones we are familiar with now.

The *Journal of the Bombay Natural History*, which made its initial appearance in 1886 and is now in its ninety-sixth volume, continues to be the major scientific medium for bird related papers and notes in the Indian subcontinent. Other Indian newsletters or journals of long standing are *Pavo*, *Newsletter for Birdwatchers*, *Mayura*, *Pitta* and *Journal of the Ecological Society*. In 1987, the Oriental Bird Club (OBC), based in the United Kingdom, started publication of the journal *Forktail* devoted to avifauna of the Oriental Region. The *Forktail* now sees a fair share of papers from the Indian subcontinent. The OBC also publishes (twice a year) the *Oriental Bird Club Bulletin* to disseminate news and information on birds and bird related projects from the Oriental region.

The period after independence was significant in the 'rediscoveries' of three bird species presumed to be extinct, as they had not been sighted for many decades. The first rediscovery was of the Finn's Baya *Ploceus megarhynchus* in 1959 by Salim Ali and J.H. Crook, after the only earlier records in 1901, and 1866 when it was first described. The next event was the rediscovery of Jerdon's Courser *Rhinoptilus bitorquatus* in 1986 through the efforts of a BNHS scientist, Bharat Bhushan, after a gap of 86 years. And, very recently (1997), the Forest Spotted Owlet *Athene blewittii* with no valid records since 1884, was sighted in northern Maharashtra by American ornithologists Ben King, Pamela Rasmussen (Smithsonian Institution) and David Abbot. Searches for two other 'mystery' species of India, the Pinkheaded Duck *Rhodonessa caryophyllacea* and the Mountain or Himalayan Quail *Ophrysia superciliosa* have not met with success so far.

A significant development for Indian ornithology was the establishment in 1996 of an Environmental Information System (ENVIS) Centre at the BNHS on Avian Ecology and Inland Wetlands funded by the Ministry of Environment and Forests, New Delhi. The computerised author-subject-species- and region-wise database on birds at the ENVIS Centre, initially developed by Asad R. Rahmani and Zafar Ul Islam of the BNHS, is being updated. There are plans to bring out this bibliography in a book form in the year 2000. The Centre has made access to information on Indian birds easier and quicker for researchers, governmental and non-governmental institutions. Till then, the only bibliographies on Indian birds were Aasheesh Pittie's *A Bibliographic Index to the Ornithology of the Indian Region* (1995), a species and region-wise bibliography of bird related papers in Volumes 1-90 of the *Journal of the Bombay Natural History Society* and ten volumes of *Stray Feathers*; and Charles G. Burg, Bruce M. Beehler and S. Dillon Ripley bibliography, *Ornithology of the Indian Subcontinent 1872-1992: An Annotated Bibliography*, published in 1994.

Ornithological research in India has been making rapid strides since the late 1980s and 1990s. From natural history notings, shooting for collection of skins and surveys prior to and during the early days of Salim Ali, to the generalised ecological and behavioural studies of the 1970s and early 1980s, ornithological research is now more focused and systematic, with the adoption of latest field techniques and analytical methods. Theoretical papers, often based on computer simulated models and statistical packages, (quite frequently with very little information of the bird itself !) are not uncommon nowadays. Use of radio telemetry (currently used in a project on raptors by the BNHS) and satellite tracking – projects on the Siberian Crane (BNHS as the Indian collaborator) and Common Crane (Centre for Wildlife and Ornithology, Aligarh as the Indian collaborator) – have seen their beginnings. These developments, the collaborative partnerships and the support of organisations such as the the U.S. Fish and Wildlife Service, Smithsonian Institution, Wild Bird Society of Japan, BirdLife International and Royal Society for Bird Protection, and the increasing cooperation between the ornithological societies and institutes in India, augurs well for the future of bird research and conservation in India.

For further reading:

Indian subcontinent

'Introduction', pp. xxix-xxx. *In: Compact Handbook of the Birds of India and Pakistan* (S. Ali & S.D. Ripley 1987). Oxford University Press, Delhi. (or refer to the relevant pages in the other editions or versions of the *Handbook*)

'History of Ornithology in the Indian Subcontinent', pp. 10. *In: Birds of the Indian Subcontinent* (R. Grimmet, C. Inskipp & T. Inskipp 1998). Oxford University Press, Delhi.

Pakistan

'The Contribution of Early Ornithologists', pp: 39-42. *In: The Birds of Pakistan* (in two volumes). Vol. 1. (T.J. Roberts 1991). Oxford University Press, Karachi.

Bhutan

'History of Ornithological Expeditions', pp: 3. *In: Birds of Bhutan* (S. Ali, B. Biswas & S.D. Ripley 1996). Zoological Survey of India, Calcutta.

Nepal

'History of Ornithology in Nepal', pp: 25-26. *In: A Guide to the Birds of Nepal*. Second Edition. (C. Inskipp & T. Inskipp 1991). Croom Helm, London.

Sri Lanka

Wijesinghe, P. (1997). Bird study in Sri Lanka: A historical perspective. *OBC Bull.* 26 (November): 26-31.